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1998

Legislative Audit Division

State of Montana

Report to the Legislature

June 1998

EDP Audit

Combined Oil and Gas System (COGS)

Department of Revenue

This report provides information regarding general and application controls relating to the COGS application. It contains three recommendations for improving controls within the department's electronic data processing environment. These recommendations address improving:

- Tax return adjustments.
- Electronic access controls.
- System documentation.

PLEASE

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Members of the EDP audit staff hold degrees in disciplines appropriate to the audit process. Areas of expertise include business and public administration.

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June 1998

The Legislative Audit Committee
of the Montana State Legislature:

This report is our EDP audit of general and application controls applicable to the Combined Oil and Gas System (COGS) at the Department of Revenue. This report contains recommendations for improving controls within the COGS data processing environment. Department responses to our audit recommendations are included in the back of the audit report.

We thank the Department of Revenue for its cooperation and assistance throughout the audit.

Respectfully submitted,

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Legislative Auditor

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Legislative Audit Division

EDP Audit

Combined Oil and Gas System (COGS)

Department of Revenue

Members of the audit staff involved in this audit were Rich McRae, Rene Silverthorne, and Lon Whitaker.

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Table 1 State and Local Distribution Percentages 10

Department of Revenue	Mary Bryson, Director
	Dave Woodgerd, Chief Legal Counsel
	Don Hoffman, Compliance, Valuation and Resolution Administrator
	Mike Boyer, Information Technology Administrator
	Judy Paynter, Tax Policy and Research Manager

Introduction

This is an electronic data processing audit of general and application controls over the Combined Oil and Gas System (COGS) at the Department of Revenue. The audit reviewed input, processing, and output controls over data processed through COGS. In addition, the audit reviewed general controls over electronic access, physical security, and system development.

The introduction, background information, and audit objectives are discussed in Chapter I. Further detail for the audit issues summarized below is included in Chapters II and III of the report.

General Controls

We limited our review of general controls because COGS processes on a personal computer rather than the department's mid-level computer environment. We evaluated the department's physical security, electronic access, and system development controls. ***General controls over COGS are adequate except for the electronic access and system development issues.***

Electronic Access Controls

Electronic access privileges allow users to view, change, or delete application data. The audit reviewed access privileges given to nine department employees. We found unnecessary employee access to COGS programs and data, maintenance tables, and tolerance edits.

Industry guidelines suggest management restrict employee access to production programs and data according to job duties. If restricted to job duties, access controls could reduce the risk of unauthorized intentional or unintentional changes to COGS. Programmer access should be restricted to test programs and files or, at a minimum, the access should be logged and monitored. Employee access to maintenance tables and tolerance edits is not necessary based on the employees' job duties.

Report Summary

System Documentation

The department's system development policy defines procedures to be followed by programmers when developing computer systems. For example, the policy requires that design specifications and the system user's manual be documented. The audit found the department has not documented a COGS user manual or updated system documentation. For example, the original program specification report is outdated and does not define current processing operations.

Documentation provides a source of information for system users and programmers who are responsible for maintaining existing systems. Without current documentation, the department is at risk for maintaining COGS if experienced programming personnel terminate their employment.

Application Controls

COGS is an application maintained on the department's personal computer network and is used by employees in the Natural Resource and Corporation Tax Division. We reviewed application controls over COGS to determine if data processing results are accurate and reliable. ***Application controls over COGS ensure accurate processing and distribution of quarterly oil and gas tax collections.***

Oil and Natural Gas Tax Distributions

Approximately 350 oil and natural gas operators file quarterly tax returns with the department. Annual tax collections exceed $40 million, with 80 percent of collections from oil taxes, and 20 percent from gas taxes. Depending on production, 65 percent of total collections are distributed to local governments each quarter. COGS processes oil and natural gas tax returns, identifies errors in the returns, and maintains well, operator, lease and tax return data.

For distribution purposes, the department determines the amount of oil and natural gas taxes from the different types of wells located in each levy district. The taxes are distributed to the state and county treasurers based on percentages established in section 15-36-324, MCA.

Distribution Adjustments

The audit found that COGS processes tax distributions according to state law. However, in situations where the tax liability did not equal the tax paid, COGS distributed the adjustment to oil production first and then applied the remainder, if any, to gas production. Subsequent payments for the remaining tax due were also allocated to oil production. As a result, gas production taxes were distributed according to oil distribution percentages outlined in state law.

This condition is limited to combined oil and gas tax return adjustments processed through COGS during the three quarters ending June 30, 1997. The department has modified COGS processing logic to distribute adjustments according to the applicable tax formulas, but still needs to evaluate and correct prior distributions.

Chapter I - Introduction and Background

Introduction and System Background

This is an electronic data processing audit of general and application controls over the Combined Oil and Gas System (COGS) at the Department of Revenue. The audit reviewed input, processing, and output controls over data processed through COGS. In addition, the audit reviewed general controls over electronic access, physical security, and system development.

The department's Natural Resource and Corporation Tax Division uses COGS to administer production taxes on oil and natural gas. The division collects and distributes approximately $40 million of oil and natural gas tax revenue annually. Section 15-36-324, MCA, provides for a single production tax based on the type of well and amount of production. Beginning with the first quarter of 1996, COGS was implemented to process oil and gas tax returns and to calculate the tax distributions to state and local governments.

The division distributes oil and natural gas tax revenues to the various counties having oil and gas production, including the interest and penalty for late payment, and interest earned by the state from temporary investment of the money. The quarterly distribution is based on a statutory formula. The primary objective of COGS is to provide the functions required for oil and natural gas production taxation, distribution and reporting. Other system objectives are to increase the accuracy and reliability of tax return information, and to provide better management and statistical information.

The department is evaluating the replacement of its existing computer systems, including COGS, with a single integrated tax system. Recommendations included in this report address changes to existing department procedures and system processing functions. To implement the recommendations, we recognize the department must modify the existing system or develop solutions within a replacement system.

Chapter I - Introduction and Background

Organization of Report

The report is organized into three chapters. Chapter I provides an introduction, background information, and audit objectives. Chapter II includes the review of general controls applicable to the data processing environment. Chapter III discusses the review of application controls and audit issues pertaining to the COGS data processing function.

General and Application Controls

EDP controls provide assurance over the accuracy, reliability, and integrity of the information processed. General controls apply to the environment in which applications process data. Application controls are specific to a given application or set of programs that accomplish a specific function.

An application must operate within the general control environment in order for reliance to be placed on overall processing results. COGS operates on a personal computer platform that is maintained on the department's network. We evaluated application controls and general controls specific to the COGS operating environment.

Audit Objectives

The objectives of this audit were to evaluate, conclude, and report on the:

1. Application controls over data processed by COGS. The audit evaluated data input controls; primary processing functions, including the processing of natural gas and oil tax returns and the calculation of tax distributions; and the reliability of system output. Compliance with department policy and state law was also evaluated.

2. General controls specific to the COGS data processing environment, including physical security, electronic access, and system development controls.

Audit Scope and Methodology

The audit was conducted in accordance with generally accepted government auditing standards (GAGAS). We compared the department's general and application controls against criteria established by the American Institute of Certified Public Accountants (AICPA), United States General Accounting Office (GAO), and the electronic data processing (EDP) industry.

This audit evaluated general controls implemented by the department over COGS in selected areas. We reviewed physical security controls for backup procedures of COGS data and evaluated the department's procedures for recovery from a system failure. We evaluated access to data files and programs to ensure access is limited to those authorized to process or maintain COGS. We also reviewed development procedures, user involvement, and documentation of the COGS system to determine if department policy was followed.

The audit reviewed the department's application controls over COGS. We evaluated policies and procedures in relation to input, processing, and output controls. For example, we reviewed data entry procedures, compared hard copy tax returns to data recorded in COGS, and evaluated processing results.

Compliance

The audit reviewed application processing for compliance with department policy and state law. We also verified the tax rates and distribution percentages used on COGS for the different types of gas and oil production agreed with section 15-36-324, MCA. For example, we reviewed COGS processing activities to ensure the distribution of taxes from Post-1985 oil wells was split properly between state and local government. The audit also evaluated system development controls for compliance with department policy.

Chapter II - General Controls

Introduction

We limited our review of general controls because COGS processes on a personal computer rather than the department's mid-level computer environment. We evaluated the department's physical security, electronic access, and system development controls.

General Controls Conclusion

General controls over COGS are adequate except for the electronic access and system development issues. The electronic access issues discussed below increase the risk of unauthorized changes to COGS programs and data. In addition, system documentation over COGS could be improved. The following sections provide recommendations where the department can improve general controls.

Electronic Access Controls

Electronic access privileges allow users to view, change, or delete application data. The audit reviewed access privileges given to nine department employees. Electronic access is not restricted according to employee job duties. As outlined below, we found unnecessary employee access to COGS programs and data, maintenance tables, and tolerance edits.

-- Two employees no longer use COGS and do not require access.

-- Three employees who are responsible for programming and system support have unlogged access to all COGS application programs and data. Unlogged access increases the risk of unauthorized changes to production programs and data without detection.

-- All nine employees have access to COGS maintenance tables. Inappropriate access increases the risk of unauthorized changes to maintenance table values used to process calculations, such as fixed unit values for Pre-85 wells, tax rates and distribution rates set by state law.

-- All nine employees have the ability to change tolerance levels. Tolerance levels allow processing to continue when minimal differences are detected by the system. Using the access privilege, tolerance amounts could be increased to allow large differences to process without warning.

Industry guidelines suggest management restrict employee access to production programs and data according to job duties. If restricted to job duties, access controls could reduce the risk of unauthorized intentional or unintentional changes to COGS.

Programmer access should be restricted to test programs and files, or at a minimum the access should be logged and monitored. Employee access to maintenance tables and tolerance edits is not necessary based on the employee's job duties.

The department noted the access security software does not have the ability to completely restrict user access according to specific job functions. By removing unnecessary employee access and restricting access where possible, the department could improve controls over COGS data processing activities.

Recommendation #1
We recommend the department:

A. Remove employee access to COGS where no longer needed.

B. Restrict or log and monitor programmer access to production programs and data.

C. Restrict employee access to maintenance tables and tolerance levels.

System Documentation

The department's system development policy defines procedures to be followed by programmers when developing computer systems. For example, the policy requires that design specifications and the system user's manual be documented. The audit found the department has not developed a COGS user manual or updated system documentation. For example, the original program specification report is outdated and does not define current processing operations.

Documentation provides a source of information for system users and programmers who are responsible for maintaining existing

systems. Without current documentation, the department is at risk for maintaining COGS if experienced programming personnel terminate their employment. Department personnel indicated that a shortage of programming resources and a limited development time frame caused incomplete documentation.

The department is evaluating its department-wide data processing functions and intends to replace COGS with newer technology. On future development projects, the department should ensure in-house development projects include complete documentation according to department policy.

Recommendation #2

We recommend the department complete documentation for system development projects according to department policy.

Chapter III - Application Controls

Introduction

COGS is an application maintained on the department's personal computer network and is used by employees in the Natural Resource and Corporation Tax Division. We reviewed application controls over COGS to determine if data processing results are accurate and reliable.

Application Controls Conclusion

Application controls over COGS ensure accurate processing and distribution of quarterly oil and gas tax collections. This chapter includes one audit issue pertaining to the distribution methodology over tax return adjustments, as discussed on page 11.

Oil and Natural Gas Tax Distributions

Approximately 350 oil and natural gas operators file quarterly tax returns with the department. Annual tax collections exceed $40 million, with 80 percent of collections from oil taxes, and 20 percent from gas taxes. Depending on production, 65 percent of total collections are distributed to local governments each quarter.

COGS calculates the quarterly tax distributions to state and local governments based on the type of wells and amount of production. COGS processes oil and natural gas tax returns, identifies errors in the returns, and maintains well, operator, lease and tax return data. Tax receipts are recorded on the financial records upon collection. The total revenue collected is reconciled with COGS to ensure the department only distributes what is collected.

For distribution purposes, the department determines the amount of oil and natural gas taxes from the different types of wells located in each levy district. The taxes are distributed to the state and county treasurers based on percentages established in section 15-36-324, MCA. Table 1 shows the percentages used based on the type of production.

Table 1

State and Local Distribution Percentages

Type of Production	Local Govt. Share	State Govt. Share
Oil Production		
Working Interest		
Stripper: Pre-1985 and Post-1985 Wells, first 3 barrels	86.20%	13.80%
Post-1985 Wells (qualifying production)		
First 12 months of production	0%	100.00%
After first 12 months, but less than 24 months	89.75%	10.25%
Horizontally Drilled		
Newly Drilled		
First 18 months of production	0%	100.00%
After 18 months, but less than 24 months	89.75%	10.25%
Recompleted		
First 18 months	0%	100.00%
All Other Oil Production		
Working and Royalty Interests	60.70%	39.30%
Gas Production		
Post-1985 Wells (qualifying production)		
First 12 months of production	0%	100.00%
After first 12 months, but less than 24 months	93.75%	6.25%
All Other Gas Production		
Working and Royalty Interests	86.00%	14.00%

Source: Compiled by the Legislative Audit Division from Department of Revenue distribution percentages set in section 15-36-324, MCA.

Distribution Adjustments

The department receives over 350 tax returns reporting production from approximately 5,000 oil and natural gas leases each quarter. Quarterly tax collections exceed $9 million. State law requires the department to distribute the taxes according to the percentages outlined in table 1 on page 10. Each local government is entitled to its share of the distribution according to actual oil and natural gas production within the county. Once distributed to local governments, county treasurers allocate the funds to the individual levy districts where actual production occurred, as reported by COGS according to the distribution formula.

The audit found that COGS processes tax distributions according to state law. However, in situations where the tax liability did not equal the tax paid, COGS distributed the adjustment to oil production first and then applied the remainder, if any, to gas production. Subsequent payments for the remaining tax due were also allocated to oil production. As a result, gas production taxes were distributed according to oil distribution percentages outlined in state law. For example, a tax return adjustment we reviewed underpaid one levy district $1,325 and overpaid the state $1,263.

This condition is limited to combined oil and gas tax return adjustments processed through COGS during the three quarters ending June 30, 1997. The department has modified COGS processing logic to distribute adjustments according to the applicable tax formulas, but still needs to evaluate and correct prior distributions. The department is in the process of implementing a system enhancement that will allow them to identify the incorrect adjustments. Since completing our fieldwork, the department has determined fewer than sixty-three combined oil and gas returns require correction.

Recommendation #3

We recommend the department evaluate and correct adjustment distribution errors on combined oil and gas tax returns processed through COGS during the three quarters ending June 30, 1997.

Agency Response

Montana Department of
REVENUE

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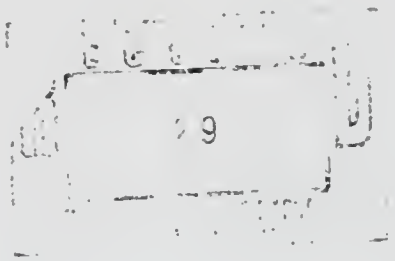
May 29, 1998



Mr. Scott A. Seacat, Legislative Auditor
Legislative Audit Division
Room 135 State Capitol
PO Box 201705
Helena, MT 59620-1705

Dear Scott:

The Department of Revenue responses to the 1998 Combined Oil and Gas System ("COGS") Audit Report recommendations are as follows:

Recommendation #1. We recommend the department:

A. Remove employee access to COGS where no longer needed.

B. Restrict or log and monitor programmer access to production programs and data.

C. Restrict employee access to maintenance tables and tolerance levels.

Concur. The audit pointed out several people had access to COGS who no longer had a business requirement to be active COGS users. Working with the user management we reduced the number of authorized users from nine to four, including the Information Technology support person. As also indicated in the audit, the system software does not provide us the ability to fully restrict or log and monitor programmer access. We will continue to pursue alternative means to restrict or log programmer access to production data.

Recommendation #2. We recommend complete system documentation for system development projects according to department policy.

Concur. The only existing COGS documentation is embedded within the Clipper code. As COGS is modified for reporting or mandated function changes, that documentation will be extracted for user purposes. The demands placed on our limited staff by Year

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2000, METΔ/POINTS and other support activities prevent us from doing a more comprehensive documentation effort at this time.

Recommendaton #3. We recommend the department evaluate and correct adjustment distribution errors on combined oil and gas tax returns processed through COGS during the three quarters ending June 30, 1997.

Concur. As stated in the report, we have modified the system processing logic to remove the oil first-gas second logic for all returns entered into the system for the quarter ending September 30, 1997, and for all future quarters.

The system modifications to correct any distribution errors have been identified and the appropriate system changes will be made. Once implemented, we will correct any monies which have been distributed in error for the three quarters mentioned in your report.

We appreciate the opportunity to respond and thank you and your staff for their professional conduct and courtesy on the audit.

Sincerely,

Mary Bryson

Mary Bryson
Director